105.8 - DNA Profiling and Nucleic Acid Materials (solid forms)

SRM 2374 is intended for use as a template for ribonucleic acid (RNA) control synthesis using in vitro transcription (IVT). These RNA controls are designed to be used as external, or "spike-in", controls to support confidence in gene expression assays by providing quantitative assessment of the technical performance of a gene expression measurement. A unit of the SRM contains 96 different 0.5 mL polypropylene tubes, with approximately 10 µg of dehydrated plasmid deoxyribonucleic acid (DNA) in each tube. Depending on the strand transcribed, the controls will mimic either "sense" or "anti-sense" eukaryotic messenger RNA (mRNA).

SRM 2391c is intended for use in the standardization of forensic and paternity quality assurance procedures and instructional law enforcement or non-clinical research purposes. SRM 2391c includes short tandem repeat (STR) information for all genomic DNA samples in the SRM. The STR data includes the Federal Bureau of Investigation's (FBI's) CODIS (Combined DNA Index System) core STR loci and other loci that were commercially available at the time of certification. Certified values for a total of 54 STR loci plus Amelogenin, 29 of which are Y-STRs, Reference values for 26 STR loci, and Information values for 1 STR locus, 12 X-STR loci, and 30 Insertion/Deletions (Indels) are included in this issue. The new standard includes well-characterized DNA in two forms: genomic DNA and DNA to be extracted from cells spotted onto 903 and FTA filter papers. SRM 2391c consists of 6 components packaged in one box and stored at refrigeration temperatures (NOT frozen).

SRM 2392 is intended to provide quality control when performing the polymerase chain reaction (PCR) and sequencing of human mitochondrial DNA (mtDNA) for forensic identifications, medical diagnosis, or mutation detection. It may also be used as a control when amplifying (PCR) and sequencing any DNA. SRM 2392 Mitochondrial DNA Sequencing contains DNA extracted from two cell lines plus cloned DNA from a region that is difficult to sequence. The certificate accompanying the SRM details the base pair sequences of the DNA, and the sequences of 58 unique primer sets which permit the amplification and sequencing of any specific area or the entire human mitochondrial DNA (strand). SRM 2392 consists of three frozen components packaged in one box. For further information see: SP260-155

SRM 2392-I Mitochondrial DNA Sequencing compliments and adds another DNA template to SRM 2392 for the amplification and sequencing of human mtDNA. The selection of the HL-60 cell culture line for this additional DNA template was based on a suggestion from the Federal Bureau of Investigation (FBI) that this DNA would be particularly useful to the forensic community. For further information see: SP260-155

SRM 2394 Heteroplasmic Mitochondrial DNA Mutation Standard contains mixtures of a 285 base pair polymerase chain reaction (PCR) product from two different cell culture lines that differ by one base pair. These mixtures contain varying ratios of the minor/major heteroplasmy including 1/99, 2.5/97.5, 5/95, 10/90, 20/80, 30/70, 40/60, and 50/50. This SRM is intended to provide quality control in determining the sensitivity of heteroplasmic low-frequency single nucleotide mutation detection techniques.

RMs 8375, 8391, 8392, 8393, and 8398 are intended for assessing performance of human genome sequencing, including whole genome sequencing, whole exome sequencing, and more targeted sequencing such as gene panels. Specifically, the material can be used to obtain estimates of true positives, false positives, true negatives, and false negatives for variant calls.

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	2366a	2372	2373	2374	2391c	2392	2392-I	2393	2394	2396	8375	8391	8392	8393	8398
Description	Cytomegalovirus DNA (Towne-BAC) for DNA Measurements	Human DNA Quantitation Standard	Genomic DNA Standards for *HER2* Measurements	DNA Sequence Library for External RNA Controls	PCR-Based DNA Profiling Standard	Mitochondrial DNA Sequencing	Mitochondrial DNA Sequencing (Human HL-60 DNA)	CAG Repeat Length Mutation in Huntington's Disease	Heteroplasmic Mitochondrial DNA Mutation Detection Std	Oxidative DNA Damage Mass Spectrometry Standards	Microbial Genomic DNA Standards for Sequencing Performance Assessment	Human DNA for Whole-Genome Variant Assessment (Son of Eastern European Ashkenazim Jewish Ancestry)	Human DNA for Whole-Genome Variant Assessment (Trio of Eastern European Ashkenazim Jewish Ancestry)	Human DNA for Whole-Genome Variant Assessment (Son of Chinese Ancestry)	Human DNA for Whole-Genome Variant Assessment (Daughter of Utah/European Ancestry)
Unit of Issue	(1 vial)	(set (3 x 1 each))	(5 vials, 1 each level)	(96 tubes)	(6 vials)	(set (3))	(each)	(set (6))	(set (10))	(set (10))	(4 vials, 1 each level)	(1 vial)	(3 vials)	(1 vial)	(1 vial)

- Certified values are normal font
- Reference values are italicized
- Values in parentheses are for information only